

# Silvicultural Options

## Tennessee Department of Agriculture, Division of Forestry



Silviculture, or "forest-culture" involves cutting trees in a way that fosters regeneration of fast-growing, well-formed trees of desired species. Silviculture also serves as a tool for managing wildlife, visual values and watershed concerns.

**Patch or clearcutting** (removing all trees in an area greater than ½ acre) is used to manage species that require full sunlight (red oak, walnut, yellow poplar, yellow pine etc). Exposure to full sun must be maintained through the sapling and pole timber stages.

This method creates forest edge habitat and produces a variety of nutritious wildlife foods. Relatively **small clearcuts** are best for most species. **Relatively large clearcuts** (say, more than 50 acres) are beneficial but sub-optimal for most wildlife.

Owners of large tracts of land might find that a few large clear harvests are easier to manage than many small harvest areas. Larger harvest areas also require fewer miles of access roads, and once an area is harvested it is left undisturbed for decades. Large openings have less timber edge effect (more limbs on the open side) than smaller opening.

Landowners who employ large clear harvest areas should consider leaving wide (100') streamside management zones containing mature trees along perennial streams. These will accommodate most songbirds even where all upslope areas have been clearcut. Leaving 2 or three den trees per acre will accommodate a number of other wildlife species

Harvesting **small groups** (¼ to ½ acre) of trees can regenerate white oak, ash, red maple, cherry and white pine, which are intermediate in shade tolerance. A few less tolerant species may also regenerate toward the centers of openings. While not optimal for timber production, this method provides a good compromise between timber, wildlife and scenic objectives. It is well suited to small ownerships.

**Individual tree selection** management is suited only to trees that reproduce and grow well in the shade. This excludes oaks and most other highly desirable trees in the Southeast. The only timber species in this region that can be grown on a sustainable basis using this method is sugar maple.

Maintaining **two ages** of trees at all times in a given stand is an option in oak forests where scenery and certain wildlife species (squirrels, birds) are important considerations.

**Thinning** is an intermediate cutting method used to increase growth of the "crop" trees. Thinning can be used in any timber management system at the sapling or pole timber stage. *Thinning does not generate a new forest, and it cannot improve a forest forever. Eventually there must be a final harvest and regeneration of new trees.*

**Crop tree management** is carefully targeted thinning. The manager identifies trees of good form and species on good sites (crop trees) then frees them to grow faster by cutting some of the surrounding trees.

**Butt-log forestry** can produce veneer logs in a relatively short time on very good sites. Seedlings are planted at the intended spacing at maturity (say, 25'). "Nurse trees" (such as locust) are grown between the crop trees to shade-prune them and train them into a strong vertical form. Nurse trees are removed when the crowns of the crop trees begin to close. Limbs of the crop trees should be trimmed to a height of 17 feet.

**Modified shelterwood** can encourage oak regeneration on good sites. Understory trees and perhaps 10% of the overstory trees are removed to promote growth of vigorous oak seedlings without encouraging competitors such as poplar. When the oak saplings reach about 10 feet in height, the entire overstory is harvested.

**High grading or diameter limit cutting**, where marketable trees over a given diameter are cut, is not a silvicultural method. High-grading may be less noticeable than clearcutting, but it seldom results in good regeneration. Repeated high-grade logging generally reduces the commercial value of the forest. High-grading has been by far the most common cutting method in the mid-south because it is the most profitable in the short term. There are, however, some situations where high-grading might be appropriate, such as removing a few large over-mature trees from a younger stand, or removing scattered merchantable trees from a streamside management zone.

There is no "best" timber management method. Each has its own purpose, advantages and tradeoffs. Methods can be mixed and hybridized.

Regardless of the silvicultural method used, the landowner should use Best Management Practices or BMPs.